

REMARKS

Applicant's filed amendment on September 12, 2003 was fully responsive to the issues raised in the Office Action dated March 14, 2003. The present Supplemental Amendment merely clarifies the claims.

Applicant has amended Claim 1 to better clarify the method. Claim 32 has been amended to include the limitation of Claim 6. New Claims 33-44 have support on page 4 of the specification. Additional support for the claim amendments is found throughout the specification and claims as originally filed.

Supplemental Information Disclosure Statement

A Supplemental Information Disclosure Statement is being filed concurrently herewith. Entry of the Information Disclosure Statement is respectfully requested.

Supplemental Comments on Rejection of Claims 1-12 under 35 U.S.C. § 103(a)

Claims 1-12 are rejected under 35 U.S.C. § 103(a) as being unpatentable over U.S. 6,077,464, issued to Murdie on June 20, 2000 (hereinafter "Murdie").

Claim 1 is directed to immersing a reticulated foam skeleton in a liquid precursor. The immersed skeleton is heated sufficiently to pyrolyze the liquid precursor and cause a product of the pyrolyzed liquid precursor to deposit on the reticulated foam skeleton. This is in accordance with the rapid densification process disclosed beginning at page 5, line 10 of the specification. Murdie fails to teach or suggest heating a foam skeleton, which is an open lattice forming a network of three-dimensionally interconnected cells, immersed in a liquid precursor so as to pyrolyze the liquid precursor and leave a pyrolysis product deposited on the skeleton. There is no suggestion in Murdie that fibers are interchangeable with a foam skeleton.

The mention of "liquid phase densification" at column 2, line 14 of Murdie cannot be taken out of context with respect to the detailed description of densification starting at column 10, line 28. Murdie describes pitch infiltration as a separate step from carbonization of the pitch. See, for example, column 11, lines 5-6 and 12-20. In amended Claim 1, however, the skeleton is heated so as to pyrolyze the liquid precursor in which the skeleton is immersed. Heating an

immersed reticulated foam skeleton in the liquid precursor is neither disclosed nor suggested in Murdie.

Though a carbon skeleton generally has low strength relative to carbon fibers, the matrix that is deposited imparts sufficient structural integrity where the open porosity and isotropy of the carbon skeleton offer an excellent structure for wet frictional applications. The distribution of pores therethrough is substantially uniform and provide an interlaced network of conduits through which hydraulic fluid can flow. Further, the nature of this structure also allows extremely high densification levels (e.g., up to 90%), while retaining interconnected pores throughout the structure. Fibers do not provide such an unexpected advantage. The lack of strength in the carbon skeleton is made up for by the pyrolytic carbon or other deposit which provides the foam with the structural reinforcement that is needed for applications, such as wet friction.

Further, Murdie does not provide motivation for one of ordinary skill to have provided the recited solid densities. The Examiner's comments that one would have reasonably expected that the claimed densities could have been achieved is merely hindsight reconstruction, the mere fact that it may have been possible is alone insufficient to establish obviousness.

Therefore, the claimed invention is not obvious in view of the cited prior art.

CONCLUSION

In view of the above amendments and remarks, it is believed that all claims are in condition for allowance, and it is respectfully requested that the application be passed to issue. If

the Examiner believes that a telephone conference would expedite prosecution of this case, the Examiner is invited to call the undersigned.

Respectfully submitted,

HAMILTON, BROOK, SMITH &
REYNOLDS, P.C.

A handwritten signature in black ink that reads "Robert T. Conway". The signature is written in a cursive style with a long, sweeping tail on the "y" of Conway.

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